SUMMARY
The Influence of Calcium Level in Drinking Water and Calcium Urin With Calcium Stone Occurrence

An elevated calcium level in drinking water can cause urinary tract stones. High calcium in such water is suspected to elevate calcium levels in urine which result in the risk of calcium stones occurrence, the higher the level, the higher the risk. The ratio is 3:1 for men to women. Madura is an area with high calcium in its groundwater where most of its population still consumes it as drinking water. Ra’as village is an area whose population still consumes water wells directly as their drinking water. The result of calcium level check in Medical Laboratory of Primary Institution, it had calcium level in water of 437.4173 mg/l. The purpose of this study was to analyze the effect of calcium level in drinking water on that in urine and calcium stones occurrence in men in Ra’as village of Klampis, Bangkalan Region. It was an observational analytical research using cross sectional design. It was located on Ra’as and Klampis Barat villages. This study’s population was divided into 2, namely study and comparison population. The former was all men in Ra’as village and the later was of Klampis. Samples were chosen on the basis of inclusion criteria including how long they have stayed in that place which was not less than 10 years; whether they consumed water wells as their drinking water; whether they were of 30 – 60 years; if they had medical report on urinary tract stones, urinary tract infection, or impaired renal function and hyperparathyroidism; if they consumed calcium as supplement; and if they were willing to be the samples. Samples are 44 respondents consisting of 22 study groups and 22 comparison groups. This research would analyze the effect of calcium level in drinking water on that in urine using multiple regression and also the effect of calcium level in urine on the calcium stones occurrence using simple logistic regression. The result of comparison test showed that there was a significant difference in food intake from calcium sources (p=0.006), calcium level in drinking water (p=0.000), calcium level in urine (p=0.000) and calcium stones (p=0.048) between study groups and comparison groups. Whereas, there was no significant difference for protein intake (p=1.000), salt intake (p=0.896) and drinking water consumption (p=0.799). Laboratory test showed that calcium level in drinking water and that in urine of the study group was higher than that of the comparison one. And calcium stones were found in study group. 5 of 22 respondents in study groups had calcium stones, while in comparison group; none of them had the stones. On the basis of multiple regression analysis, it was found that there was an effect on calcium level in drinking water with that in urine (p=0.000). In addition, the result of simple logistic regression analysis showed that such level in urine had not affected on the calcium stones occurrence (p=0.115).
ABSTRACT

The Influence of Calcium Level in Drinking Water and Calcium Urin With Calcium Stone Occurance

An elevated calcium level in drinking water can cause urinary tract stones. Calcium in such water is suspected to increase its level in urine. A high calcium level in urine is the risk factor of calcium stones occurrence. The aim of this research was to analyze the effect of calcium level in drinking water on calcium level in urine and calcium stones occurrence in men in Ra’as village of Klampis, Bangkalan Region. This study used cross sectional design. It was located in Ra’as and Klampis Barat village. Samples are of 44 respondents consisted of 22 study groups and 22 comparison groups. This research would analyze the effect of calcium level in drinking water on calcium level in urine using multiple regression test and also the influence of calcium level in urine on the calcium stones occurrence using simple logistic regression test. The result of comparison test showed that there was a significant difference in the food intake from calcium sources (p= 0.006), calcium level in drinking water (p= 0.000), calcium level in urine (p= 0.000) and calcium stones (p= 0.048) between study groups and comparison groups. Whereas, there was no significant difference for protein intake (p=1.000), salt intake (p= 0.896) and drinking water consumption (p= 0.799). Conclusion is there was an effect on calcium level in drinking water with calcium urine (p= 0.000) and there was no effect on calcium urine with the calcium stones occurrence (p= 0.115).

Keywords : Calcium level in drinking water, calcium urin, urolithiasis, calcium stone.